

A PRELIMINARY LIST OF RECENT MIDDLESEX MOLLUSCA.

By J. E. COOPER and A. LOYDELL.

Read 11th December, 1908.

WE venture to submit the following list, though far from complete, as a contribution towards the census of recent Middlesex Mollusca. So far as we know, no list has been published for the county since 1836 (supplement to Daniel Cooper's "Flora Metropolitana"). The last revision of the Conchological Society's census enumerates eighty species for vice-county twenty-one. We have verified seventy-three of these, and we can also add twenty-one species which are not given in that list, so that with some old records we now enumerate 110 species.

The surface of Middlesex is chiefly London Clay, with considerable stretches of river-gravel on the lower ground and some alluvium along the rivers. In the north there are a few patches of Bagshot Sand and some Drift Clay (both singularly barren of Mollusca), while the Chalk appears in the extreme north-west corner of the county. Very little Chalk lies actually within the county, but its influence is felt by the molluscan life of the Colne Valley.

Some vestiges of ancient woodland still remain round Harefield, Pinner, Harrow Weald, East Finchley, Stanmore, Enfield, and a few other spots, but they do not appear to shelter many snails. *Vitrea pura* and *V. radiatula* are characteristic of these areas.

Since the county is bounded on three sides by rivers—the Colne, the Thames, and the Lea—there is no lack of fresh-water species, and the low-lying land bordering the rivers harbours many slugs and snails.

We are indebted to Mr. B. B. Woodward for identifying the greater part of the *Pisidia*, and for kindly furnishing us with numerous old records which we should not otherwise have seen; we have also to thank Mr. A. S. Kennard and Mr. R. A. R. Priske for various notes of localities.

Where no reference follows the localities enumerated below we have ourselves collected the shells in question. In all other cases we append references, using the following abbreviations:—

T.M. = "A monograph of the land and fresh-water Mollusca of the British Isles," by J. W. Taylor.

B.C. = "British Conchology," by J. Gwyn Jeffreys, 1862.

Rim. = "Land and fresh-water shells of the British Isles," by R. Rimmer, 1880.

J.C. = Journal of Conchology.

S.G. = Science Gossip.

1. TESTACELLA MAUGEI, Fér.

A single specimen is in the British Museum (Natural History), marked as coming from a garden at Kensington, and Mr. E. A. Smith, I.S.O., kindly informs us it was received in a collection of British shells bequeathed by a Mrs. Robinson in April, 1848.

2. TESTACELLA HALIOTIDEA, Drap.

This species has been recorded for Hampstead (C. C. Fryer, S.G., 1889, p. 259); Regents Park, Upper Holloway, Chiswick, and Uxbridge (T.M., ii, p. 11). It appears to be much less common than *T. scutulum*.

We doubt if any *Testacella* is really indigenous to the county. These carnivorous slugs usually appear in nurseries and gardens, seldom, if ever, in fields.

3. TESTACELLA SCUTULUM, Sby.

West Ealing (a living specimen sent us by R. A. R. Priske); Highgate, Hornsey, Stroud Green, Finchley, Ealing, and Isleworth (T.M., ii, p. 19); also the following localities quoted by J. W. Taylor in J.C., v, p. 344—Stamford Hill, Kensington, Hammersmith, Regents Park, Hendon, Hampstead, Middle Temple, Stoke Newington, Whetstone, Haverstock Hill, St. John's Wood, Turnham Green, Winchmore Hill, and Upper Holloway. Mr. Webb records it further at Enfield (Journ. Malac., vi, p. 26, wrongly entered as Herts).

Var. *albina*, G. & F. Chiswick (T. D. A. Cockerell, S.G., 1892, p. 255); Highgate and Hornsey (T.M., ii, p. 17).

Var. *aurea*, Ckl. Bedford Park (T. D. A. Cockerell, S.G., 1885, p. 225).

4. LIMAX MAXIMUS, L.

Harefield, Twickenham, Fulham Palace, and Highgate. Widely distributed, but not very common. It is also recorded for Chiswick, Acton, Whetstone, Upper Holloway, Harrow, and Hampstead (T.M., ii, p. 48).

Var. *cellaria*, d'Arg. West Ealing (R. A. R. Priske), Upper Holloway (T.M., ii, p. 44).

Var. *fasciata*, Raz. Highgate (T.M., ii, p. 42).

Var. *Ferussaci*, Moq. Highgate and Upper Holloway (T.M., ii, p. 45).

5. LIMAX FLAVUS, L.

Fulham Palace and Highgate. Abundant where it does occur, but it is seldom seen in the daytime, as it feeds at night and is of a very retiring disposition. Other records for this species are Acton, Ealing, Bedford Park, Hampstead, and Muswell Hill (T.M., ii, p. 85).

Var. *umbrosa*, Phil. Hillingdon, Bedford Park, and Highgate (T.M., ii, p. 83).

Var. *Breckworthiana*, Lehm. Ealing, Acton, and Hampstead (T.M., ii, p. 84).

6. AGRIOLIMAX AGRESTIS (L.).

Only too common everywhere. It shows great variation in colour, ranging from white through various shades of yellow and brown to a deep chocolate or purple. We have not met with an absolutely white or a black specimen.

7. AGRIOLIMAX LÆVIS (Müll.).

Harefield, Yiewsley, Neasden, Hampton Court, and near Colnbrook. It is not uncommon at the margins of ditches and rivers.

Other records for this species are Twickenham (S. C. Cockerell, S.G., 1885, p. 116); Hanwell and Perivale (T.M., ii, p. 128).

8. MILAX SOWERBYI (Fér.).

Twickenham, Fulham Palace, Finchley, East Finchley, Highgate, and Neasden. It is plentiful on the higher ground in North Middlesex. The type is the prevalent form.

Var. *nigrescens*, Ckl. Twickenham and Finchley. Also recorded for Acton and Bedford Park (T.M., ii, p. 156).

Var. *bicolor*, Ckl. Ealing (T. D. A. Cockerell, S.G., 1887, p. 187).

Var. *fuscocarinata*, Ckl. Bedford Park (T.M., ii, p. 156).

9. MILAX GAGATES (Drap.).

We have failed to find this slug, although it is said to be fairly common. It is recorded for Hornsey and Islington (T.M., ii, p. 147).

Var. *plumbea*, Moq. Ealing (T. D. A. Cockerell, S.G., 1887, p. 187); Acton, Bedford Park, and Hampstead (T.M., ii, p. 144).

Var. *rava*, Williams. Hornsey and Crouch Hill (T.M., ii, p. 145).

Var. *pallidissima*, Pollon. Highgate (T.M., ii, p. 146).

10. VITRINA PELLUCIDA (Müll.).

Harefield, Staines, Stanwell Moor, Hampton Court, Acton, and Neasden. It is a local species and does not appear to live in the eastern part of the county.

11. VITREA CRYSTALLINA (Müll.).

Harefield, Uxbridge, Yiewsley, Stanwell Moor, Twickenham, Acton, Fulham Palace, Stanmore, East Finchley, Highgate Woods, Wood Green, and Ponders End. Abundant among rotten leaves in suitable localities.

12. VITREA LUCIDA (Drap.).

Grounds of Fulham Palace, where it is probably an introduction. We have not met with genuine *V. lucida* anywhere else in the county. It is, however, recorded for Isleworth (F. G. Fenn, S.G., 1887, p. 139, and Mr. B. B. Woodward has specimens thence), South Kensington (T.M., iii, p. 27).

13. VITREA CELLARIA (Müll.).

It appears that two species (*V. cellaria*, s.s., and *V. Scharffi*) have hitherto been included under this name. We believe typical *V. cellaria* is not uncommon in Middlesex, but we can only record it with certainty from Muswell Hill and Highgate Woods.

14. VITREA SCHARFFI, Kennard.

This newly described species we have found at Harefield, Neasden, Finchley, and East Finchley. No doubt it occurs elsewhere, but we did not attempt to differentiate it from *V. cellaria* until last autumn; consequently our previous notes may refer to either species, and are now useless.

15. *VITREA ROGERSI*, B. B. Woodward.

Harefield, Yiewsley, Stanmore, Finchley, East Finchley, Highgate Woods, near Hendon, Hampstead, and Muswell Hill. Very widely distributed and abundant in some localities on the higher ground.

Var. *viridans*, Ckl. A single example from near Hendon.

One specimen of the type from Finchley has a flat spire.

16. *VITREA ALLIARIA* (Miller).

Harefield, Yiewsley, Bedfont, Stanmore, Hampstead Heath, Muswell Hill, Highgate, Finchley, East Finchley, and Neasden. Widely distributed over the county, but nowhere common. Its usual habitat is among dead leaves in old woodland.

Another record is Hendon (C. C. Fryer, S.G., 1889, p. 259).

17. *VITREA NITIDULA* (Drap.).

The commonest *Vitrea* in Middlesex; it occurs wherever the ground is suitable.

18. *VITREA PURA* (Alder).

Harefield, Greenford, Acton, Ealing, Willesden, East Finchley, and Highgate. It occurs in colonies, but is not a common shell.

Var. *nitidosa*, Gray. Harefield and East Finchley, with the type.

19. *VITREA RADIATULA* (Alder).

Harefield, Acton, Highgate, Finchley, and East Finchley. Always found sparingly and somewhat rare.

20. *ZONITOIDES NITIDUS* (Müll.).

Harefield, Uxbridge, Yiewsley, near Colnbrook, Stanwell Moor, Greenford, Southall, Bedfont, Alperton, Willesden, Acton, Ealing, Hampton Court, Neasden, and Ponders End. It is common in suitable spots in the Colne Valley, and occurs sparingly in the other localities mentioned.

It is also recorded for Enfield (S. C. Cockerell, S.G., 1883, p. 9).

21. *EUCONULUS FULVUS* (Müll.).

Harefield, Uxbridge, Yiewsley, and near Colnbrook. Not uncommon on the margins of ditches in the Colne Valley. At Harefield it lives in a wood among dead holly-leaves.

22. *ARION ATER* (L.).

Yiewsley, Twickenham, Fulham Palace, Ealing, Hendon, and Finchley. Widely distributed and rather common; it is usually typical in colour, occasionally brown or creamy-white.

Var. *succinea*, Müll. Immature specimens at Harefield and East Finchley; also recorded for Highgate (T.M., ii, p. 182) and Bedford Park (T. D. A. Cockerell, S.G., 1885, p. 224).

Var. *castanea*, D. & M. Finchley; also recorded for Acton, Bedford Park, Bush Hill Park, Highgate, and near Hendon (T.M., ii, p. 176).

Var. *plumbea*, Roeb. Highgate and Bedford Park (T.M., ii, p. 179).

Var. *rufa*, L. Bedford Park (T. D. A. Cockerell, S.G., 1885, p. 224).

Var. *nigrescens*, Moq. Bedford Park (T. D. A. Cockerell, S.G., 1885, p. 224).

23. ARION SUBFUSCUS (Drap.).

Harefield, Finchley, East Finchley, and near Hendon. Not very common, but plentiful where it does occur.

Var. *brunnea*, Lehm. Highgate (T.M., ii, p. 199).

Var. *cinereofusca*, Drap. Harefield and Finchley; also recorded for Highgate (T.M., ii, p. 200).

24. ARION INTERMEDIUS, Normand.

Yiewsley, Uxbridge, Neasden, and Finchley; probably in other localities besides, but it is easily passed over as juvenile *A. ater*.

25. ARION HORTENSIS, Fér.

Abundant everywhere, especially in gardens.

Var. *grisea*, Moq. Bedford Park (T.M., ii, p. 216).

Var. *cærulea*, Collinge. Ealing (T.M., ii, p. 216).

Var. *subfusca*, C. Pfr. Bedford Park (T.M., ii, p. 217).

Var. *rufescens*, Moq. Bedford Park (T.M., ii, p. 218).

26. ARION FASCIATUS, Nilsson.

Harefield, Bedford, Hampton Wick, Fulham Palace, Neasden, Stanmore, East Finchley, Highgate, and Ponders End. Not uncommon. It lives in the open country as well as in woods. It has also been recorded from Hayes, Hanwell, Isleworth, Chiswick, and Muswell Hill.

Var. *Neustriaca*, Mab. Highgate (T.M., ii, p. 232).

27. PUNCTUM PYGMÆUM (Drap.).

Harefield, Yiewsley, and near Colnbrook: apparently rare.

28. SPHYRADIUM EDENTULUM (Drap.).

Uxbridge. The locality was destroyed a few years ago when the new railway line was built.

29. PYRAMIDULA ROTUNDATA (Müll.).

Very common everywhere.

Var. *Turtoni*, Flem. Near Hendon.

Var. *alba*, Moq. Finchley.

We have a sub-scalariform example from Chiswick. A sinistral specimen is also recorded for that place (J.C., viii, p. 171).

30. HELICELLA VIRGATA (Da Costa).

Harefield: a rare shell in Middlesex.

31. HELICELLA CAPERATA (Mont.).

Harefield, West Drayton, and Acton. It is also recorded for Isleworth (J.C., vi, p. 309).

32. HELICELLA CANTIANA (Mont.).

Acton, Finchley, Ponders End, etc. Scattered colonies occur all over the county. It is abundant round Harefield, and along the valley of the Colne down to Staines.

33. *HYGROMIA GRANULATA* (Alder).

Abundant in the valley of the Colne; it also occurs at Bedfont, Acton, and Ponders End.

34. *HYGROMIA HISPIDA* (L.).

Common all over the county. The type is the prevalent form, but var. *hispidosa*, Mouss., also occurs. We have not met with characteristic examples of var. *subglobosa*, Jeff., which is now considered a distinct species (= *sericea*, Drap.). This form is recorded for Hammersmith (B.C., i, p. 199).

35. *HYGROMIA RUFESCENS* (Penn.).

A common shell everywhere. The vars. *rubens*, Moq., *albocincta*, Ckl., and *alba*, Moq., are found with the type in various localities. A sub-scalariform specimen comes from the side of the Thames near Brentford.

36. *ACANTHINULA ACULEATA* (Müll.).

Harefield, on dead holly-leaves. It has also been recorded at Twickenham (Cockerell, *Zoologist*, xliii, p. 340).

37. *VALLONIA PULCHELLA* (Müll.).

Yiewsley. Typical *V. pulchella* is decidedly rare in Middlesex. In deference to current opinion we give three species of *Vallonia*, though we should prefer to consider them forms of one species.

38. *VALLONIA EXCENTRICA*, Sterki.

Harefield, Hampton Court, and Ponders End. Less frequent than *V. costata*. It is also recorded for South Kensington and Ealing (B. B. Woodward).

39. *VALLONIA COSTATA* (Müll.).

Harefield, Uxbridge, Yiewsley, near Colnbrook, Hampton Court, Hampton Wick, Bedfont, and Acton.

40. *HELICIGONA LAPICIDA* (L.).

Mr. Jackson (J.C., xi, p. 345) possesses several white examples of this species, given him by Mr. R. D. Darbishire, who stated he collected them on a rough wall in the Zoological Gardens, Regents Park. They were obviously introduced.

41. *HELICIGONA ARBUSTORUM* (L.).

Harefield, Uxbridge, West Drayton, near Colnbrook, Staines, Bedfont, Chiswick, and Ealing. It appears to be absent from the lower part of the Lea Valley, although it lives at Cheshunt in Herts.

42. *HELIX ASPERSA*, Müll.

Abundant everywhere. A reversed specimen was found in H. Adams' garden, Notting Hill (Harting, "Rambles in search of Shells," p. 23).

43. *HELIX NEMORALIS*, L.

Found in most parts of the county. The pink form (var. *rubella*, Moq.) and the yellow one (var. *libellula*, Risso) are equally common.

We have var. *conica*, Pascal, from Finchley. A sinistral example is recorded for West Drayton (F. G. Fenn, S.G., 1888, p. 280).

44. *HELIX HORTENSIS*, Müll.

Scattered all over the county, but not found in some apparently suitable localities. The form usually met with is the yellow bandless var. *lutea*, Moq.

45. *ENA OBSCURA* (Müll.).

Highgate and East Finchley, on border of woods (both localities now destroyed); Shepperton, Stanmore, and Northwood.

It is a scarce species in Middlesex. A single specimen has also been recorded from Harrow (Records of the Conchological Society).

46. *COCHLICOPA LUBRICA* (Müll.).

Under stones and dead leaves everywhere. It varies considerably in size.

47. *AZECA MENKEANA* (C. Pfr.) [= *tridens*, Pult. (auctt.)].

Is recorded (Sheppard, *Zoologist*, ix, p. 3120) as having been found near Fulham.

48. *CECILIOIDES ACICULA* (Müll.).

Recorded for Ealing (G. D. Brown, S.G., 1882, p. 91).

49. *JAMINIA SECALE* (Drap.).

Mr. Rich, the dealer, informed Mr. J. E. Harting ("Rambles in search of Shells," p. 30) that this species had been met with on an old wall at Sudbury, near Harrow. Daniel Cooper, on the authority of T. Bell, records its occurrence "on the banks of the Thames."

50. *JAMINIA CYLINDRACEA* (Da Costa).

Bedfont and Ealing. It appears to be rare.

51. *JAMINIA MUSCORUM* (L.).

Harefield, in the great chalk-pit. We have not found it elsewhere in the county.

52. *VERTIGO ANTIVERTIGO* (Drap.).

Yiewsley, on a dead stem of *Typha latifolia*. It is apparently very rare.

53. *VERTIGO PYGMÆA* (Drap.).

Has been recorded from rejectamenta of the Thames at Twickenham (Records Conch. Soc.) and West Drayton (Cockerell, *Zoologist*, xlv, p. 354).

54. *VERTIGO MOULINSIANA* (Dupuy).

Near Colnbrook, on the stems of *Arundo phragmites*, in one spot only.

55. *BALEA PERVERSA* (L.).

Is given by Daniel Cooper, on the authority of J. Carter, as having occurred at Hammersmith, while Sheppard (*Zoologist*, ix, p. 3120) quotes it from Fulham.

56. *CLAUSILIA LAMINATA* (Mont.).

Is cited by Daniel Cooper, on J. Carter's authority, as having occurred at Hammersmith.

57. *CLAUSILIA BIPPLICATA* (Mont.).

Chiswick, close to the Thames. It was formerly found near Hammersmith, but we believe the locality has been destroyed. It has further been recorded from Fulham and Isleworth (Records Conch. Soc.), and even from Hyde Park, near the Serpentine (Harting, "Rambles in search of Shells," p. 66).

58. *CLAUSILIA BIDENTATA* (Ström.).

Harefield, Uxbridge, Greenford, Willesden, Hampton Court, East Finchley, and Hampstead. It is plentiful along the river wall at Hampton Court.

59. *SUCCINEA PUTRIS* (L.).

Harefield, Yiewsley, near Colnbrook, Bedfont, near Hendon, and East Finchley.

Some of the Yiewsley specimens are remarkably fine.

60. *SUCCINEA ELEGANS*, Risso.

Yiewsley, Hendon, Finchley, East Finchley, River Lea at Tottenham, ditches at Ponders End. It is also recorded for Twickenham (S. C. Cockerell, S.G., 1885, p. 116).

Var. *longiscata*, Mor. Banks of the Lea, Tottenham.

Var. *albida*, Taylor. Lower Halliford and Hampton Court.

61. *CARYCHIUM MINIMUM*, Müll.

Harefield, Uxbridge, Yiewsley, near Colnbrook, Hampton Wick, Hampton Court, Fulham Palace, and Ponders End.

62. *ANCYLUS FLUVIATILIS*, Müll.

Uxbridge, between the Frayswater and the canal; stream at Lower Halliford. It is also recorded for Brentford (S.G., 1883, p. 262), the Thames at Twickenham (S. C. Cockerell, S.G., 1885, p. 116), and the New River at Palmers Green (G. H. Weaver).

63. *ACROLOXUS LACUSTRIS* (L.).

Harefield, Uxbridge, Lower Halliford, Finchley, and East Finchley. Other recorded localities are streams at Neasden and Wembley (C. C. Fryer, S.G., 1889, p. 259); River Brent between Brentford and Hanwell (T. D. A. Cockerell, S.G., 1884, p. 138); Twyford (S. C. Cockerell, S.G., 1887, p. 43).

64. *LIMNÆA AURICULARIA* (L.).

Canal at Harefield, Frayswater at Uxbridge, West Drayton, River Colne near Colnbrook, Staines, Ickenham Common, Thames at Brentford, canal at Alperton, Hampstead ponds, River Lea at Tottenham, and New River at Enfield. It is also recorded for Hendon (C. C. Fryer, S.G., 1889, p. 259); Regents Park (T. D. A. Cockerell, S.G., 1884, p. 236).

Var. *albida*, Jeff. Queen's River, Bushey Park, and canal at Hackney.

65. *LIMNÆA PEREGER* (Müll.).

Common and generally distributed.

Var. *inflata*, Kob. Moat at Finchley, and West Drayton.

Var. *ovata*, Drap. Bushey Park.

Var. *acuminata*, Jeff. Pond near Ealing.

Var. *labiosa*, Jeff. Hampstead ponds and the moat at Finchley.

Var. *candida*, Porro. Lea Marshes.

A white-banded specimen is recorded from Hendon (C. C. Fryer, S.G., 1889, p. 259). Of these two last species Rich, the dealer, obtained some exceedingly fine specimens, which he retailed as coming from "Hendon" in order to keep the locality secret.

66. *LIMNÆA PALUSTRIS* (Müll.).

Harefield, Uxbridge, West Drayton, near Colnbrook, Staines, Shepperton, Chertsey, Stanwell Moor, near Longford, Lower Halliford, Thames at Teddington, Brent near Hendon, Greenford Green, Bedfont, Bushey Park, East Finchley, and Ponders End. It is also recorded for the lower part of the Brent (T. D. A. Cockerell, S.G., 1884, p. 138); Twyford (S. C. Cockerell, S.G., 1887, p. 43); Enfield (S. C. Cockerell, S.G., 1883, p. 9); Tottenham (Canon Horsley, S.G., n.s., vi, p. 181).

A white-banded form occurs, with the type, in the Brent near Hendon, and also in Hackney Marshes.

67. *LIMNÆA TRUNCATULA* (Müll.).

Uxbridge Marsh, near Colnbrook, near Longford, Chertsey, West Drayton, between Hampton Court and Kingston Bridge, Staines, Hendon, Finchley Common, and Ponders End. Other recorded localities are: Twickenham (S. C. Cockerell, S.G., 1885, p. 116), Hyde Park (T. D. A. Cockerell, S.G., 1884, p. 236), Hampstead Heath (J. W. Williams, S.G., 1889, p. 164).

Var. *elegans*, Jeff. Thames at Brentford and Finchley Common.

Var. *albida*, Jeff. Frayswater at Uxbridge.

68. *LIMNÆA STAGNALIS* (L.).

Harefield, Uxbridge, West Drayton, Staines, Hendon, Finchley, Ponders End, and many other localities.

A prettily banded form has been taken at Tottenham by Canon Horsley. A turreted example comes from the same locality.

69. *AMPHIPEPLEA GLUTINOSA* (Müll.).

Is recorded by Daniel Cooper, on the authority of James Carter, as occurring "on leaves of *Nymphæa lutea* at Stanmore." It has also been found in a Holocene deposit at Staines by one of the present writers.

70. *PLANORBIS CORNEUS* (L.).

In all the rivers and most of the ponds and canals.

Var. *albina*, Moq. Fulham, in the Thames backwater.

71. *PLANORBIS ALBUS*, Müll.

Plentiful in the Colne Valley; it also occurs at Bushey Park, Ruislip, Willesden, Finchley, Ponders End, and many other localities.

Var. *Draparnaudi*, Shep. Canal near Harrow (T. D. A. Cockerell).

72. *PLANORBIS GLABER*, Jeff.

Recorded in the Conch. Soc.'s census. We are informed that it was taken in a private pond at Tottenham by Chas. Ashford in 1885.

73. *PLANORBIS CRISTA* (L.).

Harefield, Uxbridge, Staines, Alperton, Ealing, Acton, and Stanmore. It is also recorded for Twyford (S. C. Cockerell, S.G., 1887, p. 43).

74. *PLANORBIS CARINATUS*, Müll.

Harefield, Uxbridge, Longford, Lower Halliford, Bedfont, Brent near Hendon, Perivale, Edgware, East Finchley, Stanmore, Enfield, and Ponders End.

It is also recorded for Neasden and Wembley (C. C. Fryer, S.G., 1889, p. 259), and the Lea at Tottenham (Canon Horsley, S.G., n.s., vi, p. 181). We have a fine scalariform specimen from a pond at Edgware.

75. *PLANORBIS UMBILICATUS*, Müll.

Very generally distributed in ditches and streams all over the county.

76. *PLANORBIS VORTEX* (L.).

Common and widely distributed in ponds and ditches. We have several distorted specimens from a small pond at Finchley.

77. *PLANORBIS SPIROBIS* (L.).

Uxbridge, Perivale, Hendon, Finchley, Hampstead, Hackney, and Lea Marshes. It is a local species, though plentiful where it does occur.

Var. *albida*, Nelson. Finchley Common.

78. *PLANORBIS CONTORTUS* (L.).

Found in all parts of the county, both in running and in stagnant water.

79. *PLANORBIS FONTANUS* (Lightf.).

Harefield, Uxbridge Marsh, Northwood, West Drayton, near Colnbrook, Stanmore, Acton, Hendon, Finchley, and Wood Green. Other records are: Hampstead (C. C. Fryer, S.G., 1889, p. 259); Enfield (S. C. Cockerell, S.G., 1883, p. 9).

80. *SEGMENTINA NITIDA* (Müll.).

Yiewsley, Chertsey, pond near Shepperton, ditch at Ponders End. It is a local species. It is also recorded for Fulham (T. D. A. Cockerell, S.G., 1884, p. 236).

81. *PHYSA FONTINALIS* (L.).

Widely distributed, and common in most of the streams and rivers.

82. *PHYSA ACUTA*, Drap.

Recorded from the Botanic Gardens, Regents Park (J.C., vi, p. 306).

83. *APLECTA HYPNORUM* (L.).

One specimen at Lower Halliford. Also recorded from Acton, usually in ditches, scarce (Cockerell, *Zoologist*, xliii, p. 299).

84. *PALUDESTRINA JENKINSI* (E. A. Smith).

This species has been but recently introduced into Middlesex. Probably the earliest record is 1904, when it was found in a ditch by the side of the Thames above Richmond, near Marble Hill. The shells were evidently carried thither from the lower reaches of the river, and by the overflow of the tide carried to their present habitat. A pond near also contains this species, showing its adaptation to purely fresh-water conditions.

In 1907 it was found abundantly in a bit of marsh by the Frayswater at Uxbridge, and also in the stream itself.

85. *BITHYNIA TENTACULATA* (L.).

Abundant in both stagnant and running water.

Var. *producta*, Menke. Yiewsley. Beautifully banded specimens are found in the Moat, Finchley. Decollated examples have been taken from a pond at Perivale.

86. *BITHYNIA LEACHII* (Shepp.).

Harefield, Uxbridge, Yiewsley, West Drayton, near Colnbrook, Lower Halliford, Shepperton, Chertsey, Hackney Marshes, and Ponders End. It is also recorded for the River Brent (T. D. A. Cockerell, S.G., 1884, p. 138); Tottenham (A. S. Kennard).

Var. *albida*, Rim. Near Colnbrook and Hackney Marshes.

87. *VIVIPARA VIVIPARA* (L.).

In all the rivers and in most of the canals. It was formerly plentiful in one of the Hampstead ponds, while some extremely fine examples have been procured from the Botanic Gardens, Regents Park (B. B. Woodward's coll.).

Var. *efasciata*, Pickering. Grand Junction Canal near Sudbury, River Lea at Tottenham. A dwarf stumpy form is not uncommon in the Thames.

88. *VIVIPARA CONTECTA* (Millet).

Staines Moor (fine examples in a pond), ditch at Uxbridge Marsh, Bushey Park (moat in enclosed grounds), stream at Lower Halliford. Also recorded for New River, West Drayton (Cockerell, *Zoologist*, xliii, p. 179). It is decidedly rare in the county.

89. *VALVATA PISCINALIS* (Müll.).

Frayswater at Uxbridge, canal at West Drayton and Yiewsley, River Colne at Staines Moor, Queen's River at Bushey Park, Thames at Hampton Wick, Lower Halliford, Brentford, Bedfont, and Ponders End. It is also recorded for Hendon (C. C. Fryer, S.G., 1889, p. 259); River Lea at Tottenham (Canon Horsley, S.G., n.s., vi, p. 181).

Var. *subcylindrica*, Jeff. Thames at Hampton Wick; also at Hammersmith (T. D. A. Cockerell, S.G., 1884, p. 236). A sinistral example is recorded from Sunbury (J.C., iv, p. 37).

90. *VALVATA CRISTATA* (Müll.).

Harefield, Uxbridge, West Drayton, near Colnbrook, Greenford Green, Acton, Bedfont, Fulham, Hackney Canal, and Ponders End. Other records are Hampstead and Hendon (C. C. Fryer, S.G., 1889, p. 259).

91. *POMATIAS ELEGANS* (Müll.).

Old chalk-pit at Harefield.

92. *NERITINA FLUVIATILIS* (L.).

Colne at Uxbridge Marsh (attached to stems of *Ranunculus fluitans*), also near Staines. Canal at West Drayton, Lower Halliford, Chertsey, Thames at Hampton Wick, Grand Junction Canal in several places, River Lea at Tottenham. It is fairly abundant in the Thames. Other localities are Hendon (C. C. Fryer, S.G., 1889, p. 259); Enfield (S. C. Cockerell, S.G., 1883, p. 9); New River at Palmers Green (G. H. Weaver).

93. *DREISSENSIA POLYMORPHA* (Pallas).

Thames at Twickenham (alive), Grand Junction Canal, Alperton (mostly dead shells).

It is said to be abundant in the New River, and has been found in the moat in front of the Royal Mint (*Countryside*, vol. v, p. 6).

94. *UNIO PICTURUM* (L.).

Canal at Yiewsley and West Drayton, Colne at Staines, Thames at Hampton Wick and Twickenham, canal at Willesden, and Lea at Tottenham.

It has also been taken at Hendon (C. C. Fryer, S.G., 1889, p. 259); River Brent (T. D. A. Cockerell, S.G., 1884, p. 138); Twyford (S. C. Cockerell, S.G., 1887, p. 43); Enfield (S. C. Cockerell, S.G., 1883, p. 9).

95. *UNIO TUMIDUS*, Retz.

Harefield, Colne at Uxbridge, canal at West Drayton and Yiewsley, Southall; Thames at Staines, Hampton Wick, and Twickenham; Paddington Canal, Hampstead ponds, and Lea at Tottenham.

It is also recorded for Hendon (C. C. Fryer, S.G., 1889, p. 259); Enfield (S. C. Cockerell, S.G., 1883, p. 9).

An extremely prettily tinted variety was found when the water was drawn off in Regents Park after the terrible skating accident in 1867, and received at the time the name of *Unio Richensis*, after the dealer who brought it to notice (Harting, "Rambles in search of Shells," p. 37).

96. *ANODONTA CYGNEA* (L.).

Abundant in rivers, canals, and ponds. The small form (var. *anatina*) is much commoner than typical *A. cygnea*.

97. *SPHÆRIUM RIVICOLA* (Leach).

Canal at Yiewsley, Thames at Hampton Wick and Shepperton, Brentford, Grand Junction Canal near Willesden, River Lea at Tottenham, canal at Edmonton and Ponders End. It is also recorded for Hendon (C. C. Fryer, S.G., 1889, p. 259).

Var. *flavescens*, Moq. Grand Junction Canal near Willesden, and River Lea at Tottenham.

98. *SPHÆRIUM CORNEUM* (L.).

Common and widely distributed.

Var. *pisidioides*, Gray. Paddington (B.C., i, p. 6); Regents Park (Rim., p. 4).

Var. *scaldiana*, Norman. River Brent near Hendon, and canal at Yiewsley. It is also recorded for Hampstead (Rim., p. 3).

Var. *nucleus*, Studer. Finchley; also from Hampstead and Hendon (Rim., p. 3).

Var. *flavescens*, Macg. Moat at Finchley, and occasionally with the type in other localities.

99. *SPHÆRIUM LACUSTRE* (Müll.).

Harefield, Frayswater at Uxbridge, Staines, Bushey Park, Hendon, Neasden, Perivale, Willesden, Fulham, Finchley, Hampstead, Stanmore, and Enfield. Widely distributed, but not a common species.

Var. *Brockoniana*, Bgt. Hornsey (Rim., p. 6).

100. *SPHÆRIUM PALLIDUM*, Gray.

Recorded from the Grand Junction Canal ("Paddington Canal") near Kensal Green in 1856, when it was described by Dr. Gray (Ann. Mag. Nat. Hist., ser. II, vol. xvii, p. 465). We are not aware of its having been taken in Middlesex in recent years.

101. *PISIDIUM AMNICUM* (Müll.).

In all the rivers and many of the canals. A small, solid, sub-triangular form lives in the Thames at Hampton Wick.

102. *PISIDIUM SUPINUM*, A. Schmidt.

Thames at Hampton Wick and Twickenham, stream at Bedfont. This species is well known as a Holocene fossil in the Thames Valley, but (with the exception of a few shells in the Gray Collection at South Kensington labelled "Battersea") it does not appear to have been taken alive in this country hitherto. At Hampton Wick it lives in sand; at Twickenham and Bedfont it occurs very sparingly in mud. Compared with *P. subtruncatum* the shell of this species is usually more sharply triangular, the beaks are very prominent, and often have an appendiculum similar to that of *P. Henslowianum*. A variety is more oval in outline; in all cases the shell is much more solid than in any of our other small *Pisidia*, and the teeth are stronger.

103. *PISIDIUM HENSLOWIANUM* (Shepp.).

Frayswater at Uxbridge, Acton, Bedfont, Bushey Park, Thames at Twickenham. Also from the Red Arches Pond at Hampstead (B. B. Woodward), and West Drayton (W. M. Webb).

104. *PISIDIUM SUBTRUNCATUM*, Malm.

Harefield, Uxbridge, West Drayton, near Colnbrook, Bedfont, Bushey Park, Brent near Hendon, and at Edgware. Also from the Red Arches Pond at Hampstead (B. B. Woodward), Ealing and Fulham Moat (W. M. Webb).

105. *PISIDIUM PULCHELLUM*, Jenyns.

Harefield, Bedfont, and Bushey Park. It is a very local species. Another locality is West Drayton (B. B. Woodward).

106. *PISIDIUM CASERTANUM* (Poli) = *P. fontinale*, auct. = *P. cinereum*, Alder.

This species is often identified as *P. pusillum* or *P. pusillum*, var. *cinerea*.

It is not uncommon; we have it from Uxbridge, Bushey Park, Hendon, and Hadley Wood.

107. *PISIDIUM PUSILLUM* (Gmel.).

Yiewsley. Genuine *P. pusillum* seems to be very rare in Middlesex.

108. *PISIDIUM NITIDUM*, Jenyns.

Uxbridge, West Drayton, near Colnbrook, Stanmore, Hampstead, and Enfield. It is rather a local species.

109. *PISIDIUM OBTUSALE*, Pfr.

Harefield, Greenford, Bushey Park, and Finchley Common.

This is a pond-dwelling species, and is not common in the county.

110. *PISIDIUM GASSIESIANUM*, Dupuy.

Harefield, Acton, West Drayton, near Colnbrook, Bushey Park, Stanmore, Brent near Hendon, Hampstead ponds, Edgware, Enfield, and Ponders End.

The commonest of our small *Pisidia*.
